

I. AMENDMENT

In the Claims:

Please amend the claims as follows:

103. (Amended four times) A process of isolating a substance with an ability to act as a specific agonist of a kappa opioid receptor, said process comprising the steps of:

- a) providing an opioid receptor polypeptide comprising a second extracellular loop comprising the amino acid sequence of residues 197 through 222 of SEQ ID NO:2, wherein the polypeptide is encoded for by a nucleic acid sequence comprising at least 30 contiguous bases of SEQ ID NO:1;
- b) contacting said opioid receptor polypeptide with a composition comprising said substance;
- c) detecting the ability of said substance to act as a specific agonist of said opioid receptor; and
- d) isolating said substance if the ability of said substance to act as a specific agonist of the opioid receptor is detected.

109. (Amended four times) A process of isolating a substance with an ability to act as a specific agonist of a kappa opioid receptor, said process comprising the steps of:

- a) providing an opioid receptor polypeptide comprising the second extracellular loop comprising the amino acid sequence of residues 111 through 136 of SEQ ID NO:12 and encoded for by a nucleic acid sequence comprising at least 30 contiguous bases of SEQ ID NO:11;
- b) contacting said opioid receptor polypeptide with a composition comprising said substance;

J2

- c) detecting the ability of said substance to bind to said opioid receptor polypeptide; and
- d) isolating said substance if the ability of said substance to specifically bind to the opioid receptor polypeptide is detected

J3

117. (Amended three times) The process of claim 116, wherein the chimeric opioid receptor polypeptide comprises a second extracellular loop comprising the amino acid sequence of residues 197 through 222 of SEQ ID NO:2.

J4

129. (Amended four times) A process of screening a substance for its ability to act as a specific agonist of a kappa opioid receptor comprising:

- a) expressing a chimeric recombinant opioid receptor polypeptide comprising a second extracellular loop comprising the amino acid sequence of residues 197 through 222 of SEQ ID NO:2, wherein said opioid receptor polypeptide is encoded by a nucleic acid sequence comprising at least 30 contiguous bases of SEQ ID NO:1;
- b) contacting said substance with the opioid receptor polypeptide; and
- c) detecting the ability of the substance to specifically bind to the opioid receptor polypeptide.

J5

137. (Amended four times) A process of screening a substance for its ability to act as a specific agonist of a kappa opioid receptor comprising:

- a) expressing a chimeric recombinant opioid receptor polypeptide comprising the second extracellular loop comprising the amino acid sequence of residues 111 through 136 of SEQ ID NO:12, wherein said chimeric opioid receptor polypeptide is encoded by a nucleic acid sequence comprising 30 contiguous bases of SEQ ID NO:11;

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- b) contacting said substance with the opioid receptor polypeptide; and
- c) detecting the ability of the substance to specifically bind to the opioid receptor polypeptide.

138. (Amended) The process of claim 137, wherein said nucleic acid sequence comprises 40 contiguous bases of SEQ ID NO:11.

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139. (Amended) The process of claim 137, wherein said nucleic acid sequence comprises 55 contiguous bases of SEQ ID NO:11.

140. (Amended) The process of claim 137, wherein said nucleic acid sequence comprises 70 contiguous bases of SEQ ID NO:11.

II. RESPONSE TO OFFICE ACTION

A. Nature of the Action

The Office Action dated March 12, 2002 indicates that it is final. Applicants respectfully queried the finality of the Action in a telephone conference with the Examiner on April 24, 2002. The Examiner indicated during the conference that the Office Action dated Mar 12, 2002 is in fact a non-final Action, as indicated in the Interview Summary of May 6, 2002. Applicants thank the Examiner for the clarification. Applicants therefore respond to the Office Action of March 12, 2002 ("the Action") as a non-final action.

B. Status of the Claims

The Action indicates that claims 97-143 are rejected and claims 91-96 are allowable. Applicants canceled claims 110 and 111 in the amendment filed April 30, 2001. Claims 103, 109, 117, 129, and 137-140 are herein amended. Support for the amendments can be found on

page 169, lines 2-8 and lines 19-21; and in FIG. 1 and accompanying text. A marked up copy of the amendments is attached as Appendix A. Thus, claims 97-109 and 112-143 are the subject of this response. A clean copy of the pending claims as amended is attached as Appendix B.

C. The Specification Adequately Describes Claims 97-102 and 109-114.

The Action rejects claim 97-102 and 109-114 under 35 U.S.C. § 112, first paragraph, as lacking a written description. As argued previously, the application provides sequence information to indicate the Applicants were in possession of SEQ ID NO:11 at the time the application was filed. The Action states that “The issue is that Applicants were only in possession of a partial sequence of a human opioid receptor at the time of filing, not the full-length receptor.” The Action argues that the claims therefore read upon a process “of which the Applicants were not in possession.” The Action, page 2, lines 17-18. The Action specifically notes that the claims read on a process utilizing a full length opioid receptor. The Action, page 2, lines 16-17. The Action therefore urges that the claims be limited to a screening method utilizing at most the full length of the nucleic acid sequence of SEQ ID NO: 11. Applicants respectfully traverse.

As argued previously, patent law does not require applicants to limit specifically their invention only to embodiments reduced to practice. Indeed, the scope of the claims is such that not only a full length opioid receptor could be utilized in the claimed methods, but also other constructs, such as chimeric polypeptides of other receptor components and even other polypeptides could be used. Such constructs and chimeras are described in the specification, at least in pages 86-102, 168-171, and in the several examples provided.

Regardless of what other protein components are added to those specifically provided, the full scope of the method as claimed was in possession of the inventors because the full scope

of the invention is determined by the unique functional and structural characteristics of the compositions claimed. That is, as is fully described by the specification, one may screen for or isolate substances that specifically bind to an opioid receptor, act as receptor agonists and the like, using the polynucleotides and polypeptides as claimed.

A claim is not defective when it states fewer than all of the steps that may be performed in practice of an invention. *Smith & Nephew, Inc. v. Ethicon, Inc.*, 276 F.3d 1304, 1311, (Fed. Cir. 2001), *citing Moleculon Research Corp.*, 793 F.2d 1261, 1271, 229 USPQ 805, 812 (Fed. Cir. 1986). In the present case, it is irrelevant whether additional sequences are attached to the compositions claimed as part of the methods as such additional sequences have not been claimed *per se*. If such a rejection were proper, “comprising” claim language could not be used with any claim, since in the case of nearly any composition or method it is possible to attach thereto some additional component of potentially unlimited size, which is itself not covered by the claim.

What is relevant is that the claimed subject matter has been adequately described.

The Action expresses the specific concern that the Applicants “intend to hunt for the remaining portion of the DNA while inhibiting those who may actually have identified the full-length receptor from claiming it.” The Action at page 3, lines 1-2. Applicants respectfully point out that they are claiming screening methods that utilize the novel and non-obvious characteristics of the nucleotides and polypeptides disclosed and the rejections must be relevant to the claimed invention. The present claims would not inhibit those who practice methods utilizing solely the balance of the receptor (or other polypeptide) exclusive of that claimed. But Applicants are entitled to the full scope of their invention as described.

Applicants respectfully submit that the proper issue is not that Applicants may not have in their possession the full length receptor sequence that comprises SEQ ID NO: 11, but rather

whether they had possession of the invention including compositions comprising SEQ ID NO: 11, sub-sequences thereof, and the idea and means to make larger entities comprising those sequences. The Action agrees that Applicants had possession of SEQ ID NO: 11. Applicants point to pages 86-106, and especially pages 168-171 for description of constructs containing portions of the receptor sequences in their possession. "It is possible to create an almost endless array of chimeras using standard genetic manipulations and the knowledge that the inventors have derived concerning the ligand binding sites of the opioid receptors. All such chimeras, the polynucleotides encoding them, and methods of using them in assays are contemplated within the scope of the invention." Page 170 of the specification, lines 9-14.

Applicants respectfully submit that the full scope of the present invention is described in the specification as filed. Therefore, Applicants respectfully request that the rejection be withdrawn.

D. Claims 103-109, 112-114, 129-132, 134 and 135 Have Been Amended to recite specific amino acid residue numbers.

Claims 103-109, 112-114, 129-132, 134 and 135 were rejected under the first paragraph of 35 U.S.C. § 112. It was suggested that the claims be amended to recite specific amino acid residues of the second extracellular loop. Applicants appreciate the Examiner's suggestion, which has been adopted. Independent claims 103, 109, and 129 have been amended to recite the appropriate amino acid residues of the corresponding SEQ ID NO:. Accordingly, Applicants respectfully request that this rejection be withdrawn.

E. Claims 138-142 are Definite.

The Action rejects claims 138-142 under the second paragraph of 35 U.S.C. 112. The Action states that the claims are confusing because claim 137 recites SEQ ID NO: 11, a human sequence, while claims 138-142 recite SEQ ID NO: 1, a mouse sequence. Further, the Action states that the character of SEQ ID NO: 14 is unclear.

Applicants have amended claims 138-142 to recite the proper reference to SEQ ID NO: 11. Applicants have also amended the claimed ranges of contiguous nucleotides of those claims to properly enlarge the range specified in claim 137, from which they depend.

Applicants note that SEQ ID NO: 14 provides the third intracellular loop of the mouse kappa receptor, as described on page 31, lines 5-6 of the specification. The inclusion of a mouse portion, *i.e.* a peptide of the sequence of SEQ ID NO: 14, with the human portion is consistent with the claim scope, which is directed to chimeric opioid receptor polypeptides.

Applicants respectfully submit that these remarks and amendments sufficiently clarify the definite nature of the claims and therefore that the rejection is overcome.

F. Conclusion

With respect to the outstanding rejections, Applicants believe that the present document is a full and complete response to the referenced Action. In conclusion, Applicants submit that, in light of the foregoing remarks, the present case is in condition for allowance and such favorable action is respectfully requested. Should the Examiner have any further questions or comments, or believe that certain clarifications might more readily progress the present application to issuance, a telephone call to the undersigned Applicants' representative at (512) 536-3081 is earnestly solicited.

Respectfully submitted,



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